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Focus on the Community:

Interview:

- *Carolyn Davis,*
Chair, CHAP Board
of Governors

Resource Utilization in Home Care

Inadequate Reimbursement for Long-term Care

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Nurse Turnover in Skilled Long-term Care

Public and Community Health Nursing

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Resource Utilization in

Methods and Issues

Rapidly increasing health care expenditures over the last decade have resulted in programmatic efforts by federal and state governments to reduce the costs of providing health care to all segments of the population, particularly the elderly and chronically ill. Despite a shift from inpatient to outpatient care characterized by fewer hospital admissions and discharges, more outpatient visits, and increased use of home health agency services by Medicare beneficiaries, the prices charged consumers for medical care continue to outclimb nonmedical prices, as measured by the Consumer Price Index (Donham & Maple, 1989; Gornick & Hall, 1988; National Center for Health Statistics, 1988). Health policy efforts to contain costs have focused on increasing efficiency and decreasing the overall volume of services consumed. Thus, health care providers, irrespective of service delivery setting, are being forced to examine utilization patterns, to substantiate that care is provided in the least costly setting, to reduce the total amount of services provided, and to deliver only necessary care. Although Medicare benefit payments for home health agency services currently represent only a small percentage of total Medicare benefit payments, Medicare home health agency payments increased 148% between 1981 and 1986. Responding to this increase, the Health Care Financing Administration covered fewer visits per enrollee in 1985 than in 1984 and is considering a prospective payment system (PPS) for home care reimbursement (Gornick & Hall, 1988; Hoyer, 1988a,b).



June L. Helberg

While a PPS has been implemented in the acute care setting, and costs are determined by diagnosis related groups (DRGs), payments to home care agencies are currently reimbursed retrospectively based on the number of home visits made. Prospective payment has been proposed for home care services to break the direct link between costs and

revenues (Buck & Harris, 1987). Before a PPS can be implemented in home care, information is necessary in a multitude of areas, including alternative measures of resource utilization, methods and procedures

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Home Care

Helberg describes a model to determine patterns of home care resource

use, analyzes data from ongoing research in terms of the model, and discusses implications of the study for future home care reimbursement.

Key Words: home care, resource utilization, reimbursement

to calculate these measures, and patterns of resource utilization. Such information could be valuable to home health agency administrators, third-party payors, and individuals responsible for the development of health policy as they consider alternative methods on which to base home care costs and charges.

Resource utilization definitions

Resource utilization refers to the amount of goods or services consumed, and should not be equated with either costs or charges. Cost is the transformation of resources used to a medium of exchange such as dollars, while charges are the monetary amount that goods and services are offered for in the marketplace (Kovner, 1989). The total amount of goods and services used must be known before the cost of an activity can be determined. The traditional measure of resource consumption or productivity in home care has been the home visit (Harris & Mattner, 1988; Schneider, 1989). However, time can also be used to measure resource utilization. Since time can be expressed using various numerical units, resource utilization can also be measured in minutes or days.

The amount of nursing resources consumed by home care patients, that is, number of visits, duration of care, time spent on nursing visits, and number of days between visits, should, in principle at least, be determined by a variety of factors. Any nursing model used to eventually predict home care nursing resource utilization must take into consideration patients' nursing problems, activities completed by the nurse on behalf of the patient, functional status, living arrangements, the availability of support from family and friends, and coping ability.

Measurement of resource utilization variables

The number of nursing visits is computed by summing the total number of effective home visits made to a client during an agency admission. The length of time a patient is open for service may be an alternative definition of resource consumption. It can be calculated by totaling the number of days the patient is open for nursing service for a particular admission. Patients can be considered to be open to nursing service the day of the first home visit rather than the day of referral to the agency, since there may be a delay between the time of referral and agency admission. The day of discharge from the agency can be determined either from the date of the last home visit to the patient, or from the date the patient is officially closed to the agency computer. Calculating the date of discharge as the date of the last home visit rather than closing on the computer may overlook other significant interventions such as phone contact made to the patient, conferences regarding the patient, or contacts to primary health care providers following the last effective home visit. Calculating the date of discharge as the date of computer closing may also give the nurse the opportunity to determine that no additional problems have arisen since the time of the final visit. It should be recognized that using the computer closing date as the date of agency discharge may inflate the length of time the patient is considered open for nursing service, since patients may be officially closed some time after the last home visit has been made. However, in practice, many home health agencies may fail to officially close patients on the day of the last visit, to avoid time-consuming and complex readmission procedures should the patient need to

be seen soon after the date of the last official visit.

A third measure that could reasonably be used to gauge resource utilization is the total time, summed across visits, spent by the nurse for a particular patient admission. Time needs to be carefully defined to include either direct care activities only, that is, time spent in the client's presence on her or his behalf, or patient assignable nursing time that includes direct care activities as well as indirect activities conducted outside the patient's home. Indirect care includes a variety of activities such as charting, correspondence, and phone contacts for a particular patient.

Again, there are advantages and disadvantages to using either only direct time or patient assignable nursing time as a measure of resource utilization. Most obviously, including only direct care as a measure of resource utilization overlooks the myriad of other activities that must be completed by nurses to effectively manage clinical care delivered to clients. Previous research has indicated that home care nurses from a variety of agencies spent only 30% of their time on the average in direct care activities. Thus, in contrast to direct care activities, indirect care activities comprised on average 70% of the nurse's working day (Schuster & Cloonan, 1989). Time spent by nurse providers in case management activities such as travel, conferences, charting telephone calls, and meetings must be documented lest federal and state governments, third-party payors, and employers neglect to consider these activities in calculating home care reimbursement rates (Schuster & Cloonan, 1989). On the other hand, the greater the number of activities the nurse must consider in calculating the time spent on behalf of a particular patient, the more like-

ly it is that certain activities will be overlooked, or that it will be difficult for the nurse to separate out how much time was unique to the patient in question versus other patients in the caseload.

HHealth policy efforts to contain costs have focused on in- creasing efficiency and decreasing the overall volume of services consumed.

Nonetheless, measurement of direct care activities only is likely to provide useful information in so far as the information is easy for nurses to report and that there still is a relative lack of information which identifies the amount of time spent by home care nurses in direct clinical care activities for various patient groups. Including time spent on visits and the number of nursing visits as measures of resource utilization allows one to calculate the average amount of time spent in the delivery of care to particular patients or patient groups.

There is a fourth measure that, although not a direct indicator of resource consumption, reflects the degree of service intensity expended by agencies in the delivery of clinical services to home care patients. The degree of service intensity provided to patients may be identified by calculating the average number of days between successive visits to a particular patient. This is determined by adding the number of days between successive visits for all visits made to client for a particular admission and dividing by the number of visit intervals identified. A lower than average number of days between visits might be of concern to home care agencies. To obtain an accurate estimate of days between successive visits, it is necessary to know the date of each visit as well as how many visits were made on a particular day, as some patients may be visited more than once a day. To calculate this

statistic, it is helpful to have computerized information available that chronologically identifies the dates of service provision.

A model to determine patterns of home care resource use

Patterns of home care resource utilization should be related to a variety of factors, such as DRGs and nursing diagnoses, and examined prospectively in various types of home care agencies, since particular service agencies may provide service to patients with specific needs or demonstrate different patterns of resource use. Thus, data on resource use is necessary from official, voluntary, hospital-based, and proprietary agencies. For chronically ill patients who are high utilizers with respect to service duration, this process could be expected to take more than 1 year. Utilization norms should be determined by calculating both the median and mean value for each measure of home care resource utilization being considered for all patients served by the home care program. Calculation of both the median and the mean is necessary, since the median is an average position in a distribution of values, and is insensitive to extreme variations in scores, whereas the mean can be affected by outlier scores (Polit & Hungler, 1987). Such information is likely to identify the utilization profile of a typical patient served by the agency. These same utilization norms should then be determined for specific DRGs or primary nursing diagnoses to determine the agency norm for the particular DRG or nursing diagnosis. The pattern of resource use for outlier cases in specific DRGs could then be examined to determine the reasons for outlier status. When aggregated across agencies of various types using large data sets, utilization norms on individual DRGs could serve potentially as the basis for a prospective payment mechanism for home care services (Table 1).

Application of the model

Methods. Home care utilization patterns were examined using the methodology described earlier. As part of a larger prospective investigation designed to determine the extent

to which nursing classification, activities of daily living, aid from family and friends, family coping, medical, agency, and sociodemographic variables are related to the utilization of home care nursing services, patterns of home care resource use were examined for 145 subjects. Subjects included in the study had a primary medical or surgical diagnosis, had been admitted to the home care agency for nursing service, and received at least two nursing visits. An official home health agency in New York State serving an urban, suburban, and rural population was the setting for the study. Agency patients meeting eligibility criteria were selected for the study using systematic random sampling.

Following nursing discharge from the agency, data on utilization variables was obtained from the agency's computer. Data was obtained on the dates of effective nursing services and the amount of time spent by the nurse in the home for each effective visit.

Results. Eighty-one DRGs representing 145 subjects were included in the analysis. Twelve DRGs had greater-than-average utilization for at least two utilization measures and for at least two subjects, while an additional 12 DRGs had greater-than-average utilization for one utilization measure and at least two subjects. The average patient in the sample received almost 11 nursing visits averaging about 33 minutes per visit over a period of about 8 weeks and was

Table 1
*Steps in a Model to Determine
Resource Utilization*

1. Calculate utilization norms (mean, median, standard deviation) for home care populations across all DRGs
 2. Compute utilization norms for individual DRGs
 3. Identify outlier cases for each individual DRG so that these cases can be examined in detail
 4. Continue to gather utilization norms for entire home care population as well as for individual DRGs
 5. Norms determined for individual DRGs become the standard for that DRG
-

Table 2
Utilization of Resources (N = 145)

	Total Visits	Total Time	Total Days	Days Between Visits
Mean	10.6	348	55.5	7.8
Median	6	205	41	6.1

visited approximately every 8 days (Table 2).

Seven DRGs had greater-than-average utilization across all measures. Clearly, further attention should be directed to resource use for these DRGs, because regardless of the utilization measure selected, use was greater than average and represents a potential drain on the use of agency services. A greater-than-average number of visits and total time accompanied by less-than-average total days and days between visits may indicate intensive use of services over a short time span. On the other hand, greater-than-average number of visits, total time, total days, and days between visits suggests that more general nursing surveillance may be necessary over a long period of time for chronic conditions, such as chronic obstructive pulmonary disease. Finally, an average number of visits and total days of care with increased total time

and less-than-average number of days between visits implies that more frequent and longer visits may be necessary for an average number of days. Fewer-than-average days between visits by themselves should be of less concern to agency administrators because this pattern may indicate an overall average consumption of resources by patients who are visited frequently and then discharged. Similarly, above-average days of care by themselves should not be of concern to agency administrators because although the patient may be technically open for service, visits or time are not being consumed in excessive fashion (Table 3).

Implications for reimbursement

The method of analysis suggested by this research can be used by home care agencies to identify patterns of resource use within the agency. For

example, does the agency tend to carry patients who require frequent visits of long duration over a short period of time, or does the agency tend to carry patients with chronic illnesses that necessitate monitoring over a longer time frame? An analysis of this type can also be used to examine patterns of resource use within the context of an individual nurse's caseload. Does the pattern of resource use by an individual nurse suggest that her caseload consists primarily of clients in need of short-term, intensive services, or does it suggest that she is following patients whose predominant needs are for more general health assessments? Also, do particular nurses tend to keep patients open for longer or shorter time frames, or spend more or less time in the conduct of visits?

Because of the small number of patients for whom utilization measures were available in this study, it was not possible to determine utilization patterns for all DRGs. It is also unknown whether the utilization norms established within this agency for individual DRGs would be consistent over time or would change appreciably. In principle at least, if agencies are to determine home care utilization norms for each DRG, a minimum of 20-25 cases per DRG is necessary to determine a reasonably accurate trend. In smaller home care agencies, it may be impossible to gather this type of information on each DRG. This latter point raises a significant issue for health policy. If a PPS is to be implemented in home care avoiding a shotgun approach, utilization norms must be available that accurately reflect the patterns of care being delivered in a variety of home care agencies, both large and small, from different geographic locations. Such research will require a coordinated, national, multisite approach.

Other important questions for both reimbursement and health policy are raised by this research. If home care visits are to be reimbursed on the basis of time spent in the home, individual providers and the home care agencies that employ them have an incentive to maximize the amount of time spent on each visit. Maximizing the amount of time spent on each visit may decrease the number of visits that can be made

Table 3
DRGs Exceeding Agency Home Care Utilization Norms (N = 145)

DRG	Total Visits	Total Time	Total Days	Days Between Visits
285 (N = 2)	75.5*	2334*	132*	2.0*
280 (N = 2)	62 *	1305*	116*	1.5*
218 (N = 4)	25.5*	735*	93*	4.1*
148 (N = 5)	20 *	702*	70*	4.3*
317 (N = 2)	17 *	893*	67*	4.2*
294 (N = 5)	15.2*	445*	106*	6.1*
277 (N = 3)	14.3*	475*	33	2.2*
271 (N = 4)	14.3*	378*	60*	7.4*
88 (N = 5)	10.8*	369*	89*	8.4
250 (N = 3)	8.7	418*	42	5.3*
238 (N = 2)	9	393*	36	3.2*
121 (N = 4)	6.5	231	58*	7.2*

* Exceeds overall agency mean.

DRGs: 285 = amputations for endocrine, nutritional and metabolic disorders; 280 = trauma to the skin, subcutaneous tissue and breast; 218 = lower extremities and humerus procedures, excluding hip, foot, and femur; 148 = major small and large bowel procedures; 317 = renal failure with dialysis; 294 = diabetes; 277 = cellulitis; 271 = skin ulcers; 88 = chronic obstructive pulmonary disease; 250 = fractures, sprains, strains and dislocations of forearm, hand, foot; 238 = osteomyelitis; 121 = circulatory disorders with AMI and cardiovascular complications, discharged alive.

and the number of patients seen in a day. This option, without restrictions on the amount of time that may be spent by the nurse, allows the nurse to deliver "quality" care. However, under this method, third-party

**Recent efforts by
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to control costs
have compelled home
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for nursing services.**

payors would have an incentive to keep hourly rates for reimbursement low. On the other hand if care is to be reimbursed by the visit, providers and agencies have an incentive to minimize the amount of time spent on each visit so that nurses can make more visits. The current payment by the visit methodology rewards agencies for spending the least amount of time possible in the delivery of care. Third-party payors might consider reimbursing for care on the basis of the number of visits made or use an hourly charge, when the care provided is acute in nature, self-limiting, or can be resolved with provision of nursing service. On the other hand, third-party payors might consider a per case reimbursement methodology when patients have numerous chronic conditions and/or long-term surveillance is necessary to monitor for changes in health status.

It should also be recognized that care reimbursed on the basis of the number of visits provided does not take into account the time spent on visits. It assumes that visits are equal in duration and equal in quality. Reimbursement by the visit may not reflect quality dimensions of home care services provided, such as activities undertaken by the nurse, the sophistication of psychomotor or interactional skills employed by the nurse, or the unique nursing problems of the patient.

For professional nursing practice,

these are indeed critical issues that underscore a sensitive problem in both acute care and home care settings. The approach of this research implies that reimbursement for home care services should be based on DRTs rather than on nursing diagnoses or nursing problems. Research resulting from both acute care and home care settings are currently conflicting, with some studies indicating that DRGs accurately take into account needs of patients for nursing care and, thus, that DRGs may be satisfactory proxy for nursing care (Jones, 1989; Thompson & Diers, 1988; Trofino, 1988). However, other studies suggest that factors such as living arrangements, functional status, severity of illness, coping ability, nursing problems, and nursing care requirements in particular influence the utilization of home care services (Ballard & McNamara, 1983; Halloran & Kiley, 1987; Horn, Horn et al., 1986; Mion et al., 1988; Pasquale, 1987; Peters, 1988; Sovie et al., 1985). Unfortunately, at the current time third-party payors do not

believe that there is compelling evidence that supports the provision of home care nursing services on the basis of primary nursing diagnoses or nursing care provided. Thus, nursing is concomitantly struggling to develop a nursing model on which to base reimbursement, and to convince federal, state, and private payors to reimburse for nursing care on the basis of that model.

Summary

Recent efforts by third-party payors to control costs have compelled home care agencies to examine resource utilization patterns for nursing services. Thus, many agencies have needed to take a reactive stance with respect to examining utilization patterns for their agency. In order to assure that reimbursement is based on a model that is realistic and reflective of patients' needs and care provided, home care providers must now take a proactive approach and examine utilization patterns in the context of multiple organizational, patient, medical, and nursing factors.

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